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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of :

Amarasekera, et al.

Serial No.: 09/000,824

Filed: December 30, 1997

For: SILICONE COMPOSITIONS FOR HIGH
VOLTAGE INSULATOR APPLICATIONS

Examiner: C. Caixia Lu, Ph.D.

Group Art Unit: 1713

Confirmation No. 5842

Mail Stop Appeal Brief
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

APPEAL BRIEF



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APPEAL TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

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Sir:

APPEAL BRIEF

Appellants' Appeal Brief in connection with the above-captioned patent application is submitted herewith. A Notice of Appeal was filed on June 1, 2005. This Appeal Brief is believed to fully satisfy all of the requirements of 37 C.F.R. § 41.37. Each item required by 37 C.F.R. § 41.37(c)(1) is set forth below. Pursuant to 37 C.F.R. §§ 41.37(a)(2) and 41.20(b)(2) a check in the amount of \$500.00 for filing a brief in support of an appeal is included with that correspondence. It is believed that the fee calculation is correct; however, in the event of any deficiency or overpayment, the Commissioner is hereby authorized to charge or credit the undersigned's Deposit Account No. 50-0206 any amount necessary to comply with the Rules.

In response to the Office Action dated December 1, 2004, finally rejecting pending claims 1-17, 19-24, and 33, Appellants respectfully request that the Board of Patent Appeals and Interferences reconsider and withdraw the rejections of record, and allow the pending claims, which are attached hereto as the Claims Appendix.

I. REAL PARTY IN INTEREST

The real party in interest is General Electric Plastics, One Plastics Ave., Pittsfield, MA 01201, which is a subsidiary of General Electric Company, 3135 Easton Turnpike, Fairfield, CT 06828-0001.

II. RELATED APPEALS AND INTERFERENCES

On September 12, 2002, Appellants submitted a Request for an Interference Pursuant to 37 C.F.R. § 1.607 between this application and U.S. Patent No. 5,824,729 to Matsushita et al., issued October 20, 1998, and U.S. Patent No. 6,090,879 to Osamu, issued July 18, 2000. The Request for Interference was accompanied by declarations antedating the patents as references, in accordance with 37 C.F.R. § 1.608.

On November 4, 2003, Appellants submitted a Second Request for Interference Pursuant to 37 C.F.R. § 1.607 between this application and U.S. Patent No. 5,824,729, issued October 20, 1998, and U.S. Patent No. 6,090,879 issued July 18, 2000. The Second Request for Interference was accompanied by declarations antedating the patents as references, in accordance with 37 C.F.R. § 1.608.

To date, neither Interference Request has been considered by the Patent Office. The Examiner indicated that she will not consider Appellants' Request for Interference

until all other issues relating to patentability of this invention have been resolved. *See* Office Action mailed November 21, 2002, Paper No. 38, page 6.

III. STATUS OF CLAIMS

Claims 1-17, 19-24, and 33 are pending in the above-captioned application. Claims 1-17, 19-24, and 33 stand rejected. Claims 18 and 25-32 were previously cancelled and are not at issue in this appeal. More specifically, claims 17 and 19-24 have been rejected under 35 U.S.C. § 112, first paragraph as allegedly containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 1-6, 8-13, 17, 19-24, and 33 have been rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Pat. No. 5,824,729 to Matsushita et al. ("Matsushita"). Claims 7, 12, and 14 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Matsushita. Claims 1-17, 19-24, and 33 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 4,355,129 to Dams ("Dams") in view of U.S. Patent No. 3,821,140 to Milbert ("Milbert"). A clean copy of the pending claims is provided herewith in the Claims Appendix.

The rejections of claims 1-17, 19-24, and 33 are appealed.

IV. STATUS OF AMENDMENTS

After the Office Action mailed December 1, 2004, which finally rejected all of the pending claims, Appellants submitted an Amendment and Request for Reconsideration

on April 1, 2005. In the Amendment, Appellants proposed an amendment to claim 17. An Advisory Action dated May 9, 2005, indicated that the proposed amendment was not entered because it would require further consideration. Appellants' proposed amendment to claim 17 is provided below:

17. A silicone rubber composition comprising:
- (A) 100 weight parts organopolysiloxane gum having at least 2 silicon-bonded alkenyl groups in each molecule and the average compositional formula:
$$R_aSiO_{(4-a)/2}$$
in which R is selected from substituted and unsubstituted monovalent hydrocarbon groups and a has a value of about 2~~from 1.95 to 2.05~~;
 - (B) 10 to 300 weight parts aluminum hydroxide powder;
 - (C) 0.1 to 1 weight part of a silane coupling agent, and
 - (D) 0.1 to 5 weight parts of a peroxide based curing agent.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

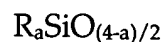
Claim 1 recites a composition comprising the following components, in the following amounts (given as a percentage of the weight of the total composition):

- (a) from about 15% to about 50% of a silicone polymer;
- (b) from about 5% to about 30% of a reinforcing filler;
- (c) from about 20% to about 70% of an anti-tracking agent and a flame retardant;
- (d) from about 0.01% to about 1% of a coupling agent;
- (e) from about 0.1% to about 5% of a curing agent;
- (f) up to about 20% of an extending filler; and
- (g) from about 0.1% to about 5% of at least one processing fluid.

Specification, p. 3, ll. 6-15.

Claim 17 recites a silicone rubber composition comprising the following components, in the following amounts:

- (A) 100 weight parts organopolysiloxane gum having at least 2 silicon-bonded alkenyl groups in each molecule and the average compositional formula:



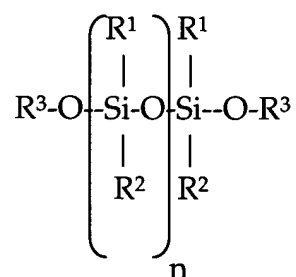
in which R is selected from substituted and unsubstituted monovalent hydrocarbon groups and a has a value from 1.95 to 2.05;

- (B) 10 to 300 weight parts aluminum hydroxide powder;
(C) 0.1 to 1 weight part of a silane coupling agent, and
(D) 0.1 to 5 weight parts of a peroxide based curing agent.

See id. at p. 12, ll. 9-25.

The claimed compositions provide a silicone rubber composition, which, upon heat curing, may be converted to a rubbery elastomer. *Id.* at p. 5, ll. 9-11. This rubbery elastomer is suitable for high voltage electrical insulator applications because it provides superior insulating properties, as well as resistance to weather, erosion, tracking, and arc, under severe contaminative or weather conditions. *See id.* at p. 4, ll. 11-13; p. 9, ll. 12-26. In specific, the compositions made from the claimed formulations have good tracking and erosion resistance and fast hydrophobicity recovery, which are critical to the performance and longevity of high voltage insulators. *Id.* at p. 5, ll. 20-23.

The silicone polymer of the claimed composition may be, for example, a diorganopolysiloxane having at least two silicon atom-bonded alkenyl groups per molecule. *Id.* at p. 5, ll. 24-25. The alkenyl group may be, for example, vinyl, allyl, or propynyl. *Id.* at p. 5, ll. 26-27. The structure of the silicone polymer may be either linear or branched, but is preferably linear. *Id.* at p. 5, ll. 27-28. For example, the silicone polymer may be represented by Formula I below:



Formula I

where R¹ independently at each occurrence represents C₁₋₄ alkyl, or C₂₋₄ alkylene; R² independently at each occurrence represents C₁₋₄ alkyl, C₁₋₄ haloalkyl, or C₂₋₄ haloalkyl, or C₂₋₄ alkylene; R³ independently at each occurrence represents H, C₁₋₁₀ alkyl, C₂₋₄ alkylene, C₄₋₆ cycloalkyl, C₁₋₄ haloalkyl, or OH; and n represents an integer from 1,000 to 20,000. *Id.* at p. 3, l. 20 - p. 4, l. 5.

The reinforcing filler, if added in the proper proportion, improves the mechanical strength of the composition. *See id.* at p. 6, l. 27 - p. 7, l. 11. The reinforcing filler may be, for example, fumed silica, precipitated silica, or carbon black having a surface area of from about 50 to about 400 m²/g. *Id.* at p. 4, ll. 15-15.

The anti-tracking agent and flame retardant of the claimed composition, improves the arc resistance and the flame retardancy of the composition. *Id.* at p. 6, ll. 16-17. An exemplary anti-tracking agent and flame retardant is alumina trihydrate (ATH, or aluminum hydroxide). *See id.* at p. 6, ll. 15-26.

The coupling agent, such as an organosilane compound, enhances the dispersibility and reinforcing effect of the ATH and the siloxane polymers in the composition. *See id.* at p. 7, ll. 24-26. When added in the proper amount, a silane

coupling agent increases the tensile strength, increases the tracking and erosion resistance, improves the adhesion of the composition during the molding process. *See id.* at p. 8, ll. 9-16. The coupling agent may be, for example, vinyltriethoxysilane (VTES), vinyltrimethoxysilane, or methacrylpropyltrimethoxysilane. *Id.* at p. 4, ll. 17-19.

The curing agent of the claimed composition may be, for example, an organic peroxide, or a combination of peroxides. *Id.* at p. 8, l. 27- p. 9, l. 5. Exemplary curing agents include diacyl peroxides, ketone peroxides, peroxy esters, dialkyl peroxides, peroxyketals, peroxycarbonates, and tertiary alkyl hydroperoxides. *Id.* at p. 4, ll. 20-22; p. 9, ll. 1-5.

The extending filler of the claimed composition facilitates good mixing and dispersion of the silicone polymer with the fillers and other components. *See id.* at p. 7, ll. 12-15. The extending filler may be, for example, ground quartz, calcium carbonate, magnesium silicate, or magnesium aluminum silicate. *Id.* at p. 4, ll. 23-24; p. 7, ll. 17-20.

The at least one processing fluid of the claimed composition facilitates the mixing of polymers with fillers. *Id.* at p. 6, ll. 8-9. In addition, the processing fluids enable the compound to prevent corona noise and flash-over in a polluted environment over time. *Id.* at p. 6, ll. 9-14. The processing fluid may be, for example, an alkylpolysiloxane oil or polysiloxane oil capped with hydroxyl, allyl or phenyl groups at both terminal ends of the molecular chain. *Id.* at p. 6, ll. 6-8.

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

There are three grounds of rejection to be reviewed on appeal:

(1) Whether claims 17 and 19-24 are unpatentable for lack of adequate written description under 35 U.S.C. § 112, first paragraph;

(2) Whether claims 1-6, 8-13, 17, 19-24, and 33 are anticipated under 35 U.S.C. § 102(e) by Matsushita;

(3) Whether claims 7, 12, and 14 are unpatentable under 35 U.S.C. § 103(a) over Matsushita; and

(4) Whether claims 1-17, 19-24, and 33 are unpatentable 35 U.S.C. § 103(a) over Dams in view of Milbert.

VII. ARGUMENTS

The rejections against all of the pending claims under consideration in the above-captioned patent application should be reversed for the reasons set forth below.

A. Rejection under 35 U.S.C. § 112, first paragraph

The Examiner has rejected claims Claims 17 and 19-24 under 35 U.S.C. § 112, first paragraph as allegedly containing new matter. In particular, the Examiner alleges that Appellants identification of support for the instant claims does not provide full support for “(i) the formula of the organopolysiloxane and (ii) the range of peroxide, respectively, of claim 17.” Office Action of July 15, 2004, page 2. Each of these issues is discusses separately below.

1. The claimed peroxide range is expressly disclosed

Appellants respectfully submit that the claimed peroxide range ("from about 0.1% to about 5% by weight of the total composition of a curing agent") is disclosed in the specification. As shown in Exhibit A, attached to Appellants' response to the Office Action of December 1, 2004, a composition of 15% silicone polymer and 0.75% curing agent (as provided by the embodiment described in the specification on page 2, lines 19-28) is the same as a composition of 100 weight parts silicone polymer and *5 weight parts curing agent*, or in other words, the upper value of the claimed range. Likewise, a composition of 50% silicone polymer and 0.1% curing agent is the same as a composition of 100 weight parts silicone polymer and 0.2 weight parts curing agent. The lower range is supported when one takes into consideration that 100 weight parts of silicone polymer are also disclosed, see Example 1, page 12, lines 9-14, because 0.1 % of 100 weight parts is the same as 0.1 weight parts.

This is also consistent with the examples which provide as follows. Example 1 of the specification describes the preparation of the claimed product using "1.25 parts 2,5-dimethyl(t-butylperoxy)hexane peroxide," which is well within the claimed range. See page 12, lines 22-23. Likewise, Example 2 of the specification describes the preparation of the claimed product using "1.4 parts 2,4-dichlorobenzoyl peroxide," which is also well within the claimed range. See page 15, lines 2-3.

The Examiner misapprehends Appellants argument when she states that "the definition of wt. % and weight part are different." Office Action of December 1, 2004, page 3. Appellants do not argue otherwise, but rather point out that differences in

terminology do not render the specification defective. The Examiner does not respond to the evidence provided in the Appendix A of Appellants' response to the Office Action of December 1, 2004.

It is well established that "[t]he fundamental factual inquiry [for determining compliance with the written description requirement] is whether the specification conveys with reasonable clarity to those skilled in the art that, as of the filing date sought, applicant was in possession of the invention as now claimed." See MPEP § 2163.I.B. (Eighth Ed. Rev. 2 2004) (citing *Vas-Cath, Inc.*, 935 F.2d 1555, 1563-64, 19 USPQ2d at 1117 (Fed. Cir. 1991)). In view of at least the foregoing, it is apparent that the specification reasonably conveys to a person skilled in the art that Appellants were in possession of the peroxide ranges recited in claim 17 at the time the application was filed.

2. The formula of organopolysiloxane

Appellants respectfully submit that the organopolysiloxane formula recited in claim 17, namely $R_aSiO_{(4-a)/2}$ in which R is selected from substituted and unsubstituted monovalent hydrocarbon groups and a has a value from 1.95 to 2.05, is implicitly and inherently disclosed in the original specification. Appellants specifically identify the support for this formula below.

It is well established that the subject matter of a claim need not be described literally for the disclosure to satisfy the description requirement. See MPEP § 2163.I.B. Newly added claim limitations may be supported in the specification through express,

implicit or inherent disclosure. *See Id.* For example, “[t]he written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species.” *See* MPEP § 2163.05.I.

Here, the formula of claim 17 is well supported in the original specification by sufficient description of a representative number of species. For instance, Example 1 of the specification discloses a diorganopolysiloxane gum “consisting of 99.77 mole % dimethylsiloxane units and 0.23% methylvinylsiloxane units.” Page 12, lines 9-11. Further, Example 1 of the present specification also provides a diorganopolysiloxane gum “consisting of 99.02 mole % dimethylsiloxane units and 0.08 mole % methylvinylsiloxane units.” Page 12, lines 11-13. These example, particularly when viewed in the context of formula I and the substituent groups disclosed in the application, are sufficiently representative to inform a person skilled in the art that Appellants were in possession of the formula recited in claim 17.

In fact, as further evidence that these disclosures sufficiently support the formula of claim 17, Appellants note that the Matsushita et al. reference (U.S. Patent No. 5,824,729), cited by the Examiner in the Office Action, provides the same formula as claim 17 and states with reference to the formula that “[t]he units constituting this component are specifically exemplified by *dimethylsiloxyl*, methylphenylsiloxyl, *methylvinylsiloxyl*, and methyl(3,3,3-trifluoropropyl)siloxyl units. See col. 2, ln. 20-23. [emphasis added] The dimethylsiloxyl and methylvinylsiloxyl are likewise disclosed as

examples in the present specification. Accordingly, sufficiently representative species are provided by the present specification.

The Examiner asserts that Appellants provide no reasoning to support their assertion that the formula is implicitly and inherently disclosed. Office Action of December 1, 2004, page 3-4. The Examiner also recites a formula that is purported to demonstrate that the claimed ranges are not supported in the specification. However, the Examiner seems to disregard the examples as identified above and provides no support for using the formula with the values she asserts. In fact, the range of values for n that she applies to her formula is incorrect. The specification recites that n is 1,000 to 20,000, not 1,000 to 2,000 as the Examiner asserts. See Specification, page 4, lines 4-5. When the examples are taken into consideration, the Examiner's own evidence, Matsushita et al., clearly supports the Appellants' assertion. Indeed, Matsushita et al. also recite an n value of 1,000 to 20,000 for their organopolysiloxane gum. See col. 2, lines 17-19.

In view of at least the foregoing, the specification reasonably conveys to a person skilled in the art that Appellants were in possession of the claimed invention at the time the application was filed.

B. Rejection under 35 U.S.C. § 102(e) over Matsushita

1. Claims 1-6, 8-13, 17, 19-24, and 33

In the Final Office Action mailed December 1, 2004, (the "Final Office Action") the Examiner rejected claims 1-6, 8-13, 17, 19-24, and 33 under 35 U.S.C. § 102(e) as

allegedly being anticipated by Matsushita. As previously noted, Appellants submitted a Request for an Interference Pursuant to 37 C.F.R. § 1.607 accompanied by an affidavit antedating Matsushita as a reference, in accordance with 37 C.F.R. § 1.608. The interference request has not yet been considered by the Patent Office. A Second Request for an Interference Pursuant to 37 C.F.R. § 1.607 was also submitted with Appellants' previous response consistent with the previously presented claim amendments. This interference request has also not yet been considered. Although Appellants urge otherwise, the Examiner currently indicates she will not consider Appellants' Request for an Interference until all other issues relating to patentability of this invention have been resolved. When Appellants' Requests are considered, the Rule 608 affidavit will remove Matsushita as a reference.

For at least these reasons, Appellants respectfully submit that the Examiner's rejection of claims 1-6, 8-13, 17, 19-24, and 33 as being anticipated by Matsushita, are improper and respectfully request reversal of this rejection, and allowance of the pending claims.

C. Rejection under 35 U.S.C. § 103(a) over Matsushita

1. Claims 7, 12, and 14

The Examiner also rejected claims 7, 12, and 14 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Matsushita. As discussed above and in Appellants' previous response, Appellants respectfully traverse the rejection because Matsushita is not a proper reference and should be removed upon the Patent Office's consideration of

Appellants' Requests for an Interference and Rule 608 affidavit. For at least these reasons, Appellants respectfully submit that the Examiner's rejection of claims 7, 12, and 14 as being unpatentable over Matsushita, is improper and respectfully request reversal of this rejection, and allowance of the pending claims.

D. Rejection under 35 U.S.C. § 103(a) over Dams in view of Milbert

1. Claims 1-17, 19-24, and 33

The Examiner also rejected claims 1-17, 19-24, and 33 under 35 U.S.C. § 103(a) as being unpatentable over Dams in view of Milbert. In support of this rejection, the Examiner alleged that Dams teaches all of the elements of the claims, except "the silicone polymer containing hydroxy or alkoxy ending group. " Office Action mailed November 21, 2002, Paper No. 38, page 5. However, the Examiner further alleges that "Milbert teaches a polysiloxane composition for electrical insulation material comprising all the components as claimed in the instant claims except the alumina trihydrate anti-tracking agent Milbert's polysiloxane reads on that of the instant claims." *Id.* The Examiner finally alleges that "it would have been obvious for a skilled artisan at the time the invention is made to employ Milbert's silicone polymer in Dam's composition to provide a high voltage insulation material with improved bonding between the silicone polymer and the fillers such as silica and alumina trihydrate." *Id.* at page 6.

To establish a prima facie case of obviousness, three criteria must be met: (1) there must be some suggestion or motivation to modify the reference or to combine

reference teachings, (2) there must be a reasonable expectation of success, and (3) the prior art references must teach or suggest all the claim limitations. See *In Re Vaeck*, 947 F.2d 488, 493 (Fed. Cir. 1991); *In re Royka*, 490 F.2d 1981 (CCPA 1974). The suggestion or motivation to combine and the reasonable expectation of success must be found in the prior art, and not in applicant's disclosure. *In re Vaeck*, 947 F.2d at 493; See also MPEP § 2143.01 (citing *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990)); MPEP 2144.08.II.A (stating "it is essential the Office personnel find some motivation or suggestion to make the claimed invention in light of the prior art teachings")(citing *In re Brouwer*, 77 F.3d 422, 425, 37 USPQ2d 1663, 1666 (Fed. Cir. 1996). Here, Appellants submit that a prima facie case has not been established because there is no suggestion or motivation to combine the references, and the references, alone or in combination, fail to teach or suggest all of the claim limitations.

First, the Appellants submit that Dams and Milbert are not properly combinable because there is no suggestion or motivation in the prior art for a person of ordinary skill in the art to combine the teachings of the references. The references are directed to entirely different purposes—Dams to silicone rubber with improved color retention when exposed to corona discharge, and Milbert to a fire resistant elastomer. Here, the prior art does not suggest the desirability of the combination. For example, Dams states that "[t]his invention relates to novel pigmented elastomer forming compositions which in the cured state have *improved colour stability*." Col. 1, lines 5-7. [emphasis added] The Examiner does not even seem to allege any motivation or cite any evidence in

support thereof. There would appear to be no motivation for one to combine the teachings of a reference directed to improved color stability with a reference for a fire resistant elastomer. Therefore, a person skilled in the art would not be motivated to modify the compositions of either reference to incorporate components of the other.

Indeed, the Examiner merely alleges that the references are combinable because the references are analogous in that they both teach silicone compositions being used as insulating material. Office Action mailed December 1, 2004, page 4. However, even if the references are analogous, that alone does not render the references properly combinable. "The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification." *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984). *See also In re Brouwer*, 77 F.3d 422, 425 (Fed. Cir. 1996) ("Although the prior art references the examiner cited teach a generic chemical reaction . . . we have made clear that '[t]he mere fact that a device or process utilizes a known scientific principle does not alone make that device or process obvious.'" (quoting *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1053 (Fed. Cir. 1988))). Accordingly, a prima facie case of obviousness has not been established.

Further, Appellants submit that even if the Dams and Milbert references were properly combined, the references fail to teach or suggest all of the claim limitations. More specifically, Appellants submit that the references are deficient for failing to disclose the claimed range of the coupling agent (e.g., from about 0.01% to about 1% by

weight of the total composition of a coupling agent), as recited in claims 1 and 17. The Examiner alleges “using coupling agent to enhance the compatibility between the siloxane and the filler as well as the ATH are well known routine practice in industry and coupling agents are taught in both Milbert and Dams.” Office Action mailed December 1, 2004, pages 4-5. The Examiner further alleges that the amount of the coupling agent could be determined through routine experimentation. *Id.* at page 5.

Although the Examiner cites U.S. Patent No. 5,583,172 to Imahashi, et al. (“Imahashi”) as evidence of the use of coupling agents at the time of the invention, Imahashi merely refers to the use of coupling agents as a surface treatment for metal hydroxide and flame retardant aid before their incorporation into synthetic resins. Imahashi, col. 3, ll. 31-33. The Examiner misrepresents the teaching of Imahashi when she asserts that it supports the proposition that the amount of the coupling agent can be easily determined through routine experimentation. In fact, Imahashi discloses that the amount of coupling agent is 0.1 to 10 parts by weight relative to 100 parts by weight *of the flame retardant*. *Id.* at co. 3, ll. 33-36. [emphasis added] Thus, by only disclosing the amount of the coupling agent relative to the flame retardant, Imahashi provides no guidance regarding the amount of coupling agent used in the synthetic resin it describes, let alone the compositions of the present invention. Also, in disclosing a range of values, Imahashi actually provides evidence that the amount of coupling agent is significant, thus refuting the Examiner’s unsupported allegation that the amount can be determined by routine experimentation.

Moreover, given the unpredictability of the technology there can be no reasonable expectation of success where one merely picks and chooses from the multitude of possibilities and combinations. Additionally, there is no evidence that the amount of the coupling agent was recognized in the prior art to be a results-effective variable. *See In re Antonie*, 559 F.2d 618, 620 (CCPA 1977) (holding that where “the parameter optimized was not recognized to be a result-effective variable” discovery of the optimum value of the parameter is not obvious). Accordingly, Appellants respectfully submit that the relative amounts could not be determined through undue experimentation. Even when the references are combined, they are deficient and thus a prima facie case of obviousness is not established.

Finally, Appellants submit that even if a prima facie case of obviousness was established, it would be rebutted by the unexpected results achieved by the claimed invention. *See Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). In particular, Appellants provide in the specification: “The compositions disclosed in this invention provide silicone rubber compositions, which upon heat curing are converted to rubbery elastomers superior in high voltage electrical insulating characteristics such as resistance to weather, erosion, tracking and arc under severe contamination or weather conditions.” Specification, p. 5, ll. 9-13. Table I of the Specification provide the physical properties of an exemplary embodiment of the claimed invention. Specification, p. 13, tbl. I. In comparison, Tables I, III, IV and V of Milbert show the physical properties for the compositions disclosed therein. Milbert, col. 6, ll. 25-35 (tbl. I), col. 7, ll. 10-25 (tbl.

III), col. 8, ll. 35-48 (tbl. IV), col. 10, ll. 9-23 (tbl. V). A comparison of the values from the tables shows that composition claimed in the pending application achieves a Shore A Hardness of 70 as compared to the composition of the prior art which achieves considerably lower values. Moreover, the Specification points out that "at higher silane coupling agent concentrations (VTES), and higher ATH loading the product showed increased times to failure in tracking and erosion testing." Specification, p. 13, l. 22 - p. 14, l. 2, p. 14, tbl. II.

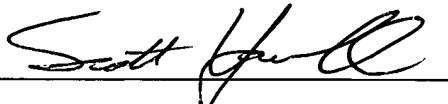
Therefore, for at least the foregoing reasons, Appellants respectfully submit that claims 1-17, 19-24, and 33 are not unpatentable over Dams in view of Milbert. For at least these reasons, Appellants respectfully submit that the Examiner's rejection of claims 1-17, 19-24, and 33 is improper and respectfully request reversal of this rejection, and allowance of the pending claims.

VIII. CONCLUSION

For the reasons set forth above, the Board is respectfully requested to reverse the Examiner's rejections with respect to claims 1-17, 19-24, and 33.

Respectfully submitted,
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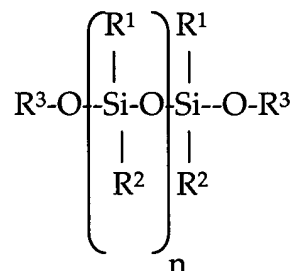
Attachment: Claims Appendix



CLAIMS APPENDIX

1. (Previously presented) A composition comprising:
 - (a) from about 15% to about 50%, by weight of the total composition, of a silicone polymer;
 - (b) from about 5% to about 30% by weight of the total composition of a reinforcing filler;
 - (c) from about 20% to about 70% by weight of the total composition of an anti-tracking agent and a flame retardant;
 - (d) from about 0.01% to about 1% by weight of the total composition of a coupling agent;
 - (e) from about 0.1% to about 5% by weight of the total composition of a curing agent;
 - (f) up to about 20% by weight of the total composition of an extending filler; and
 - (g) from about 0.1% to about 5% by weight of the total composition of at least one processing fluid.
2. (Original) A composition of claim 1 wherein:
 - (a) the silicone polymer comprises from about 25% to about 40%;
 - (b) the reinforcing filler comprises from about 8% to about 20%; and
 - (c) the anti-tracking agent and the flame retardant comprises from about 25% to about 60%.

3. (Previously presented) A composition of claim 2, wherein the silicone polymer is represented by recurring units of Formula I



Formula I

wherein:

R¹ independently at each occurrence represents C₁₋₄ alkyl, or C₂₋₄ alkylene;

R² independently at each occurrence represents C₁₋₄ alkyl, C₁-C₄ haloalkyl, or C₂₋₄ haloalkyl, or C₂₋₄ alkylene;

R³ independently at each occurrence represents H, C₁₋₁₀ alkyl, C₂₋₄ alkylene, C₄₋₆ cycloalkyl, C₁-C₄ haloalkyl, or OH; and

n represents an integer from 1,000 to 20,000.

4. (Original) A composition of claim 3 wherein

R¹ independently at each occurrence represents, CH₃ or CH=CH₂;

R² independently at each occurrence represents CH₃, CH₂CH₂CF₃, or CH=CH₂,

R³ at each occurrence represents CH₃, CH=CH₂, OH, or CH₂CH₂CF₃; and

n represents an integer from about 4,000 to about 10,000.

5. (Original) A composition of claim 3 wherein the vinyl content of the silicone polymer ranges from about 0.05% to about 0.5% by weight of the silicone polymer.
6. (Original) A composition of claim 5 wherein the reinforcing filler is fumed silica, precipitated silica, or carbon black having a surface area of from about 50 to about 400 m²/g.
7. (Previously presented) A composition of claim 5 wherein the coupling agent is vinyltriethoxysilane (VTES), vinyltrimethoxysilane, or methacrylpropyltrimethoxysilane.
8. (Original) A composition of claim 5 wherein the curing agent is a peroxide based curing agent.
9. (Previously presented) A composition of claim 8 wherein the curing agent is a diacylperoxide, ketone peroxide, or dialkyl peroxide.
10. (Previously presented) A composition of claim 5 wherein the extending filler is ground quartz, calcium carbonate, magnesium silicate, or magnesium aluminum silicate.
11. (Previously presented) A composition of claim 5 wherein the processing fluid is a methyl or hydroxy terminated polydimethyl siloxane.
12. (Original) A composition of claim 5 further comprising a mold release agent, a coloring agent, or a heat resistive agent.
13. (Original) A composition of claim 12 wherein the mold release agent is a silicone fluid, magnesium, aluminum, or cerium stearate.

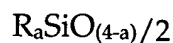
14. (Original) A composition of claim 13 wherein the heat resistive agent is a cerium octoate, cerium hydroxide, magnesium oxide, cerium oxide, or magnesium hydroxide.

15. (Original) A composition of claim 1 wherein upon heat curing the composition, the heat cured composition comprises a high voltage insulating composition.

16. (Original) A process for making a high voltage insulating composition, the process comprising heat curing the composition of claim 1.

17. (Previously presented) A silicone rubber composition comprising:

(A) 100 weight parts organopolysiloxane gum having at least 2 silicon-bonded alkenyl groups in each molecule and the average compositional formula:



in which R is selected from substituted and unsubstituted monovalent hydrocarbon groups and a has a value from 1.95 to 2.05;

(B) 10 to 300 weight parts aluminum hydroxide powder;

(C) 0.1 to 1 weight part of a silane coupling agent, and

(D) 0.1 to 5 weight parts of a peroxide based curing agent.

18. (Canceled)

19. (Previously presented) A composition according to claim 17, where the organopolysiloxane gum is a dimethylvinylsiloxyl-endblocked dimethylsiloxane-methylvinylsiloxane copolymer, a dimethylvinylsiloxyl-endblocked dimethylpolysiloxane, silanol-endblocked dimethylsiloxane-methylvinylsiloxane

copolymer, or a methylvinylhydroxysiloxy-endblocked dimethylsiloxane-methylvinylsiloxane copolymer.

20. (Previously presented) A composition according to claim 17, where the aluminum hydroxide powder has a particle size large enough to provide arc resistance necessary for prolonged use and small enough so as to not adversely affect the processability of the composition.

21. (Previously presented) A composition according to claim 17, where the aluminum hydroxide powder has a particle size of less than about 10 micrometers.

22. (Previously presented) A composition according to claim 17 comprising 50 to 200 weight parts of aluminum hydroxide powder per 100 weight parts of the organopolysiloxane gum.

23. (Previously presented) A composition according to claim 17, where the silane coupling agent is a silane having alkenyl and alkoxy substitution.

24. (Previously presented) A composition according to claim 23, where the silane coupling agent is vinyltrimethoxysilane.

Claims 25-32. (canceled)

33. (Previously presented) The composition of Claim 1, wherein the processing fluid is selected from the group consisting of an alkylpolysiloxane oil capped with hydroxyl, allyl or phenyl groups at both terminal end of the molecular chain and a phenyl polysiloxane oil capped with hydroxyl, allyl or phenyl groups at both terminal ends of the molecular chain.



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APPEAL BRIEF - CLAIMS APPENDIX

EVIDENCE APPENDIX

1. Imahashi (U.S. Patent No. 5,583,172)
--cited by Examiner in Office Action mailed July 15, 2004
2. Appendix A of Appellants' response to Office Action mailed December 1, 2004